

IMPACTS OF DROUGHT ON WILDLIFE



Impacts at a Glance – It's all about Habitat

- Reduced habitat suitability (food, water, cover, and useable space)
- Lower habitat suitability leads to increased direct mortality
- Lower habitat suitability leads to increased indirect mortality through predation, reduced production and recruitment
- Continued drought accelerates negative impacts to all wildlife populations
- Impacts tend to be cumulative = fewer critters

Drought Impacts to Habitat

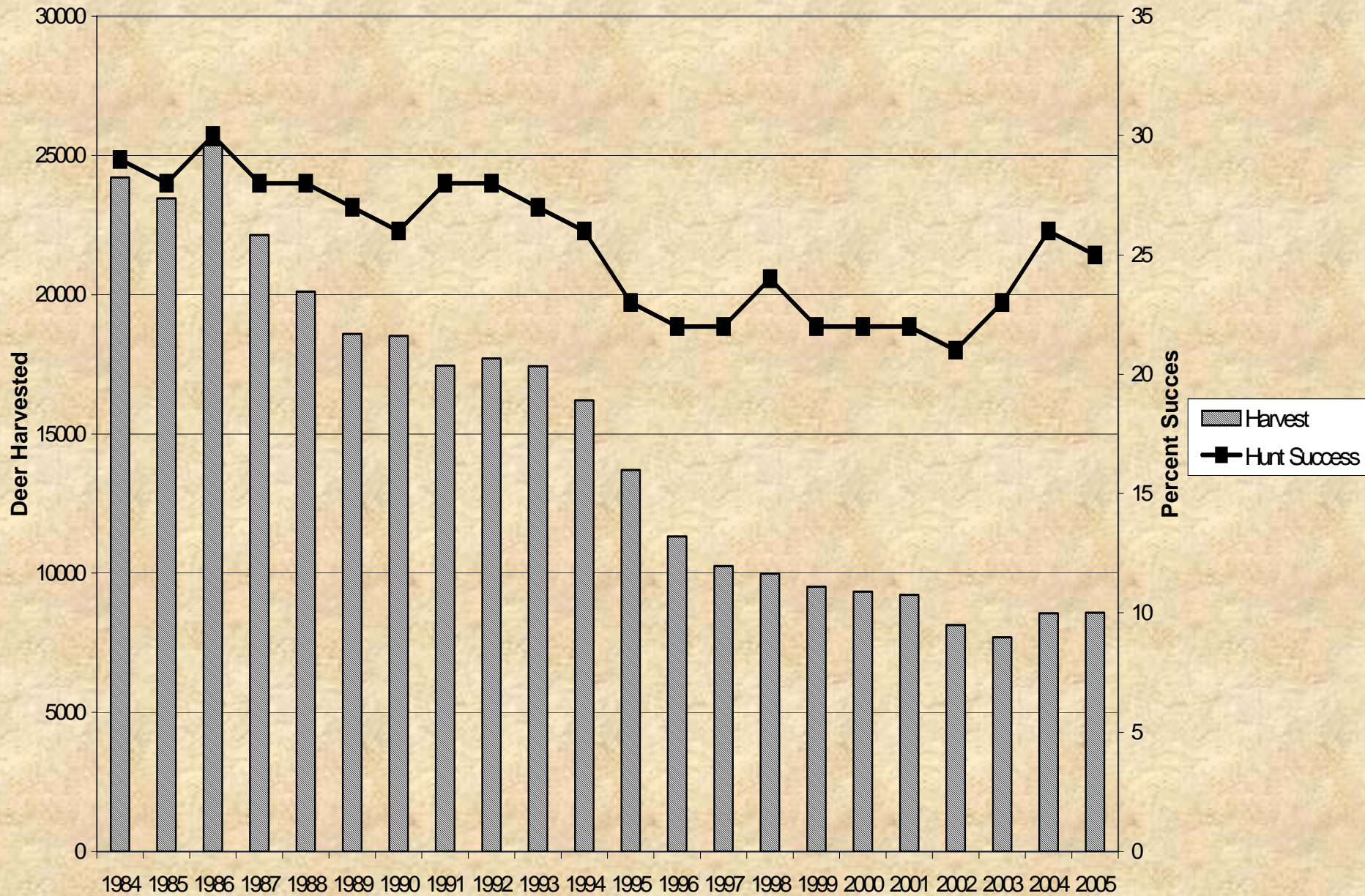


- Can be long-term
- May result in ‘permanent’ changes to habitat
- Many impacts are indirect, such as drought stress and increased susceptibility of plants to insect damage, etc.
- Habitats recover at a much slower rate than do wildlife populations

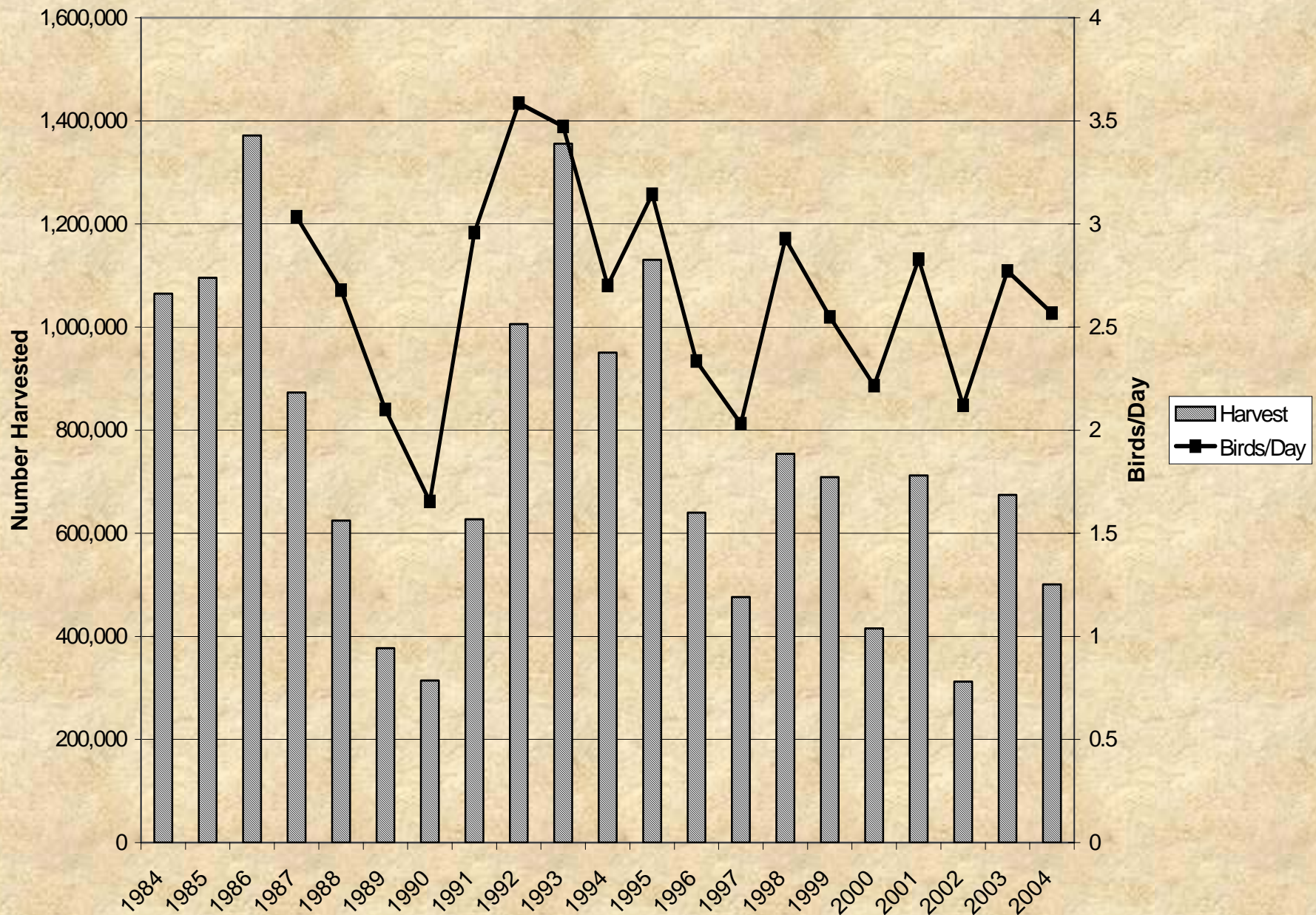
Variation of Impacts

- Severity of impacts varies by wildlife species
- K-selected species (long-lived, few large well-developed young, parental care) and sensitive species populations are typically impacted more drastically. Abundance tends to show definite trends in response to habitat condition. Habitat carrying capacity can dictate population size.
- r-selected species populations (short-lived, many young, less parental care) are more resilient to annual impacts. Show wide variation year-year in abundance. Carrying capacity for these species is rarely (if ever) achieved.

Arizona Deer Harvest Statistics 1984-2005



Arizona Gambel's Quail Harvest Statistics 1984-2004



Impacts to all Wildlife

- Similarities exist regarding impacts to game and nongame, terrestrial and aquatic, predators and prey
- Sensitive species (T&E, others) are greatly impacted by long-term drought since this represents another major limitation to population increase
- Some species of fish, birds, mammals, reptiles, and amphibians have lost crucial habitats as a direct or indirect result of long-term drought.
- Drought tends to concentrate wildlife, making them much more susceptible to disease and predation
- Drought + Habitat Fragmentation = reduced wildlife populations and increased challenges for Wildlife Agencies

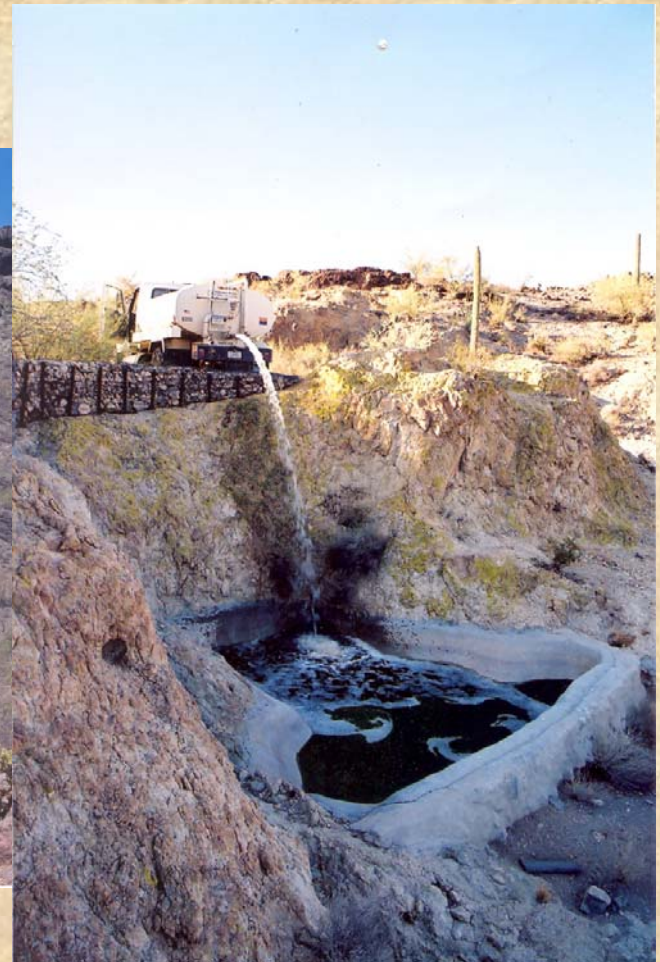
Economic Impacts of Declining Wildlife

- Loss of direct and indirect \$ for local Arizona communities from consumptive and non-consumptive users
- Reductions in customer outlay for sporting goods, etc.
- Fewer Federal \$ for Wildlife Management
- Represents a direct loss to Arizona Game and Fish Department in license revenues
- Times of poor habitat quality require increased management actions from AZGFD and others, despite reduced \$

Increased Management Actions

- During periods of low wildlife abundance, survey efforts must increase
- More effort and \$ for population maintenance
- Water catchment maintenance/water hauling costs increase
- Habitat maintenance costs increase
- 'Nuisance' wildlife calls tend to increase
- Species tend to disperse throughout unsuitable habitats (such as town) in search of water and food

Water Developments and Water Management



Total Number of Department Water Developments

Development Type	
Typical Collection Catchments	617
Pot Holes	100
Storage Tank/Drinker Only	5
Spring	86
Well/Windmill	9
TOTAL	817

Water Hauling Comparison Data

- 1996 and 2002-hauled approximately 1.4 million gallons of water per year to wildlife by every conceivable source (Game and Fish, Utilities, Private Contractors and Volunteers)
- A typical year sees approximately 600,000 gallons of water hauled to wildlife
- 2006 is shaping up to be comparable to 2002.

Bighorn Ram at Water



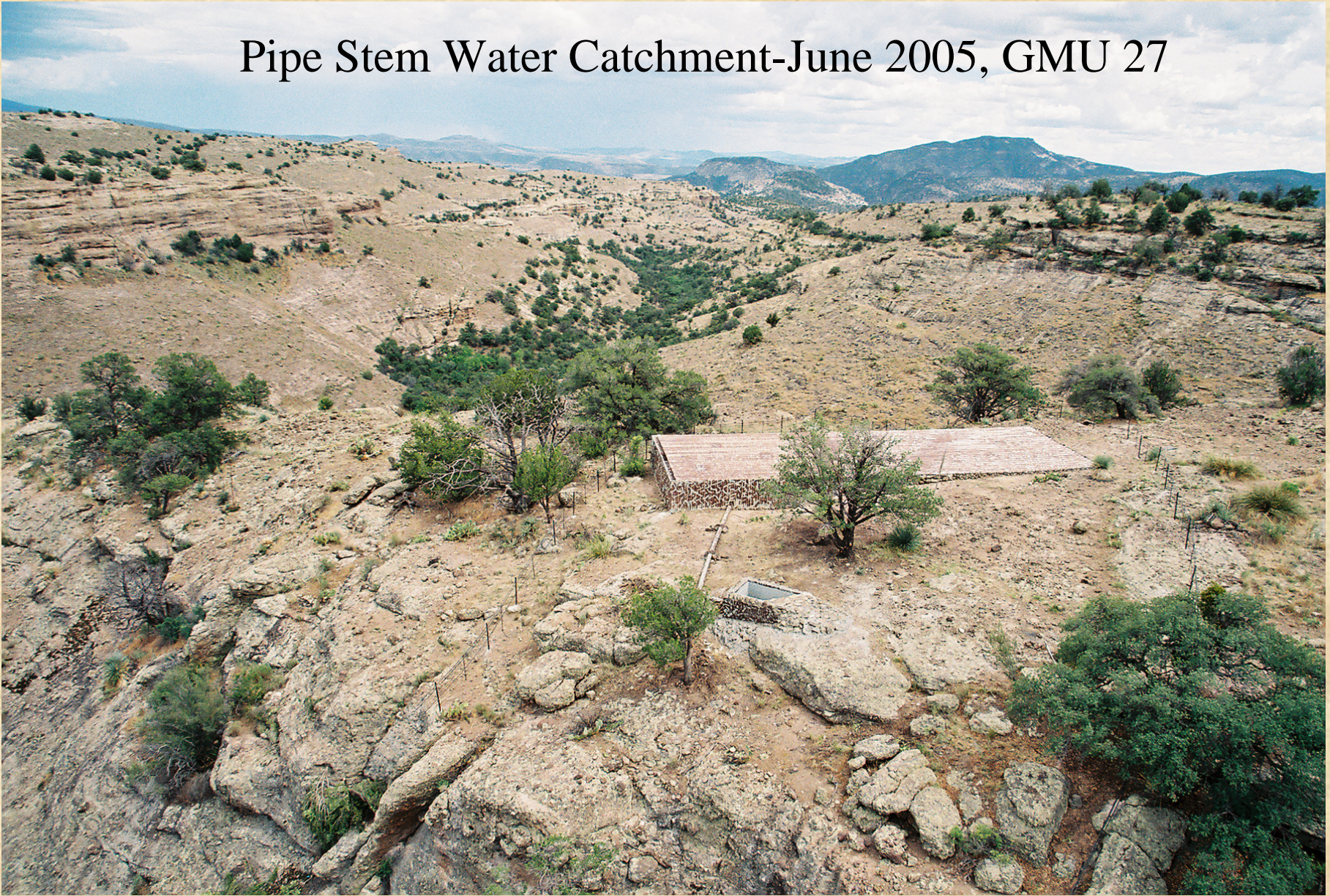
Sonoran Pronghorn at Water



Mule Deer Buck at Water



Pipe Stem Water Catchment-June 2005, GMU 27



Hauling Water to Pipe Stem





Woolsey Peak Watering Station Real-time Data Display



Temperature (F°)

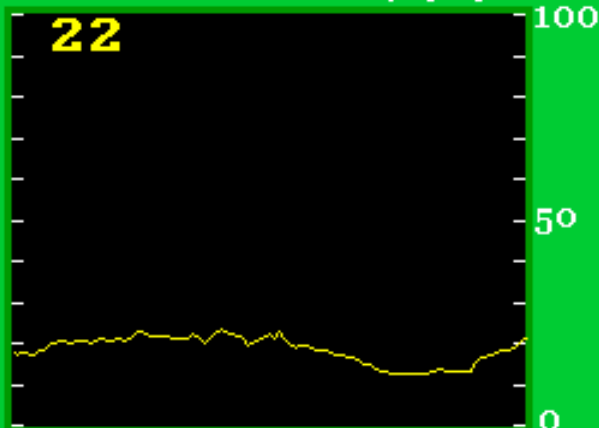
75



Sensor 5062 - Past 24 Hours

Relative Humidity (%)

22



Sensor 5061 - Past 24 Hours

Dewpoint (F°)

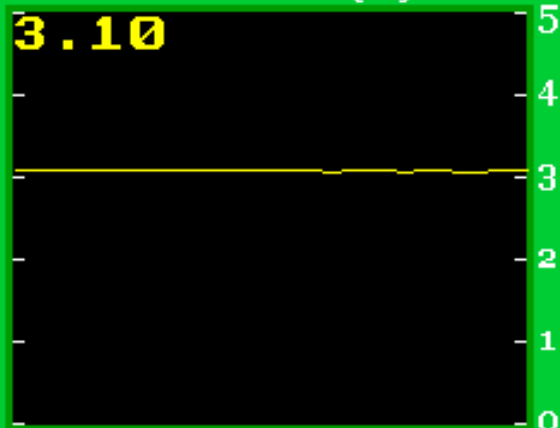
34



Sensor 5064 - Past 24 Hours

Water Level (ft)

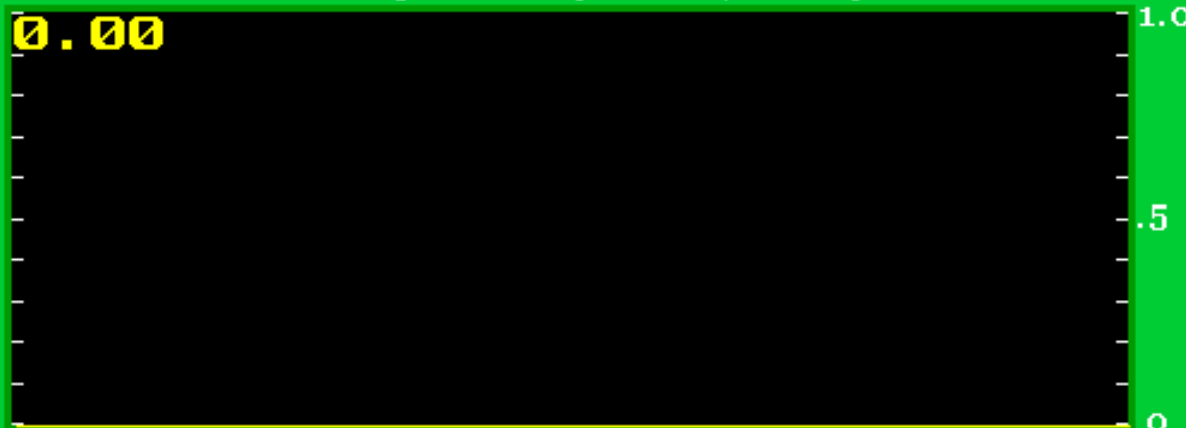
3.10



Sensor 5063 - Past 7 Days

Precipitation (inches / hour)

0.00



Sensor 5060 - Past 24 Hours

Questions?

